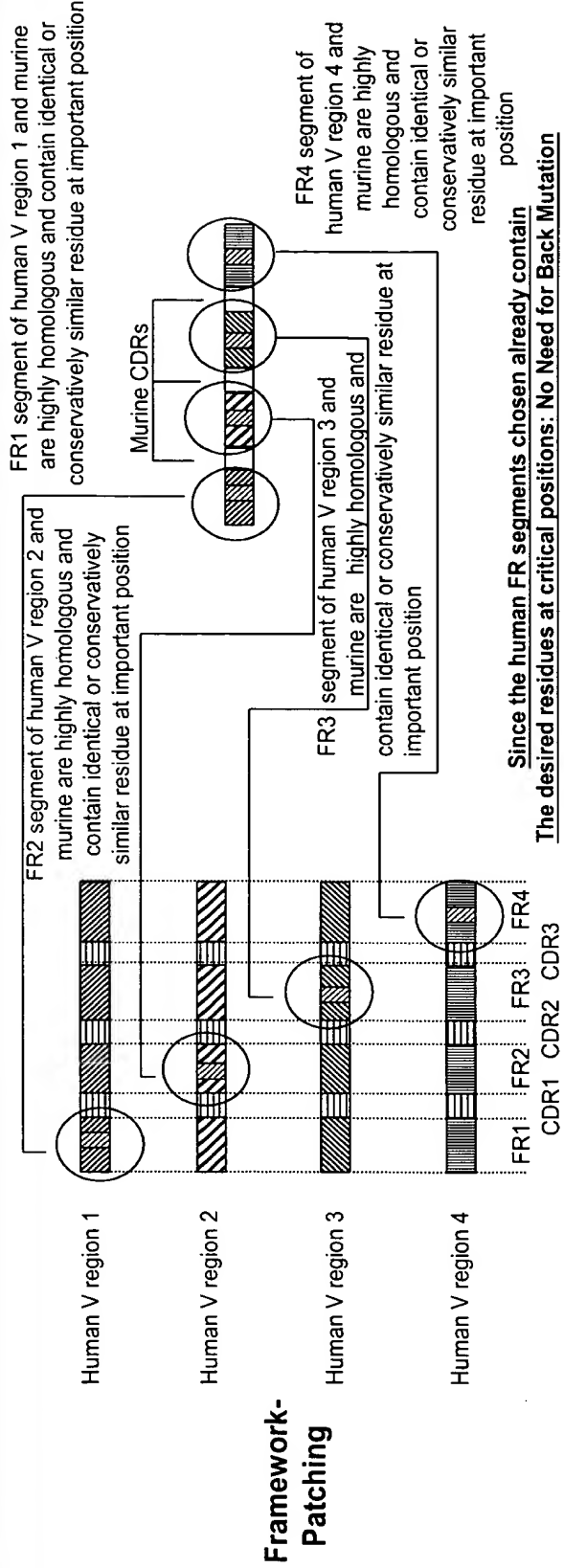
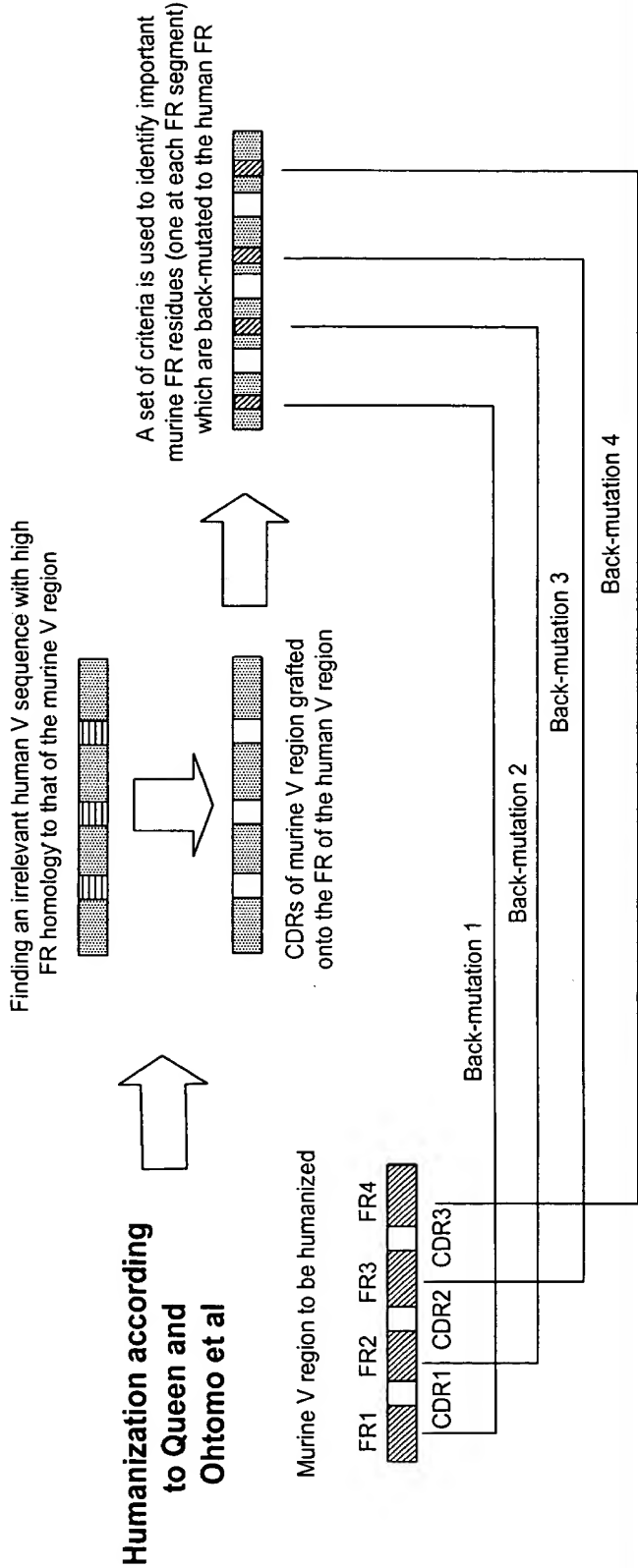
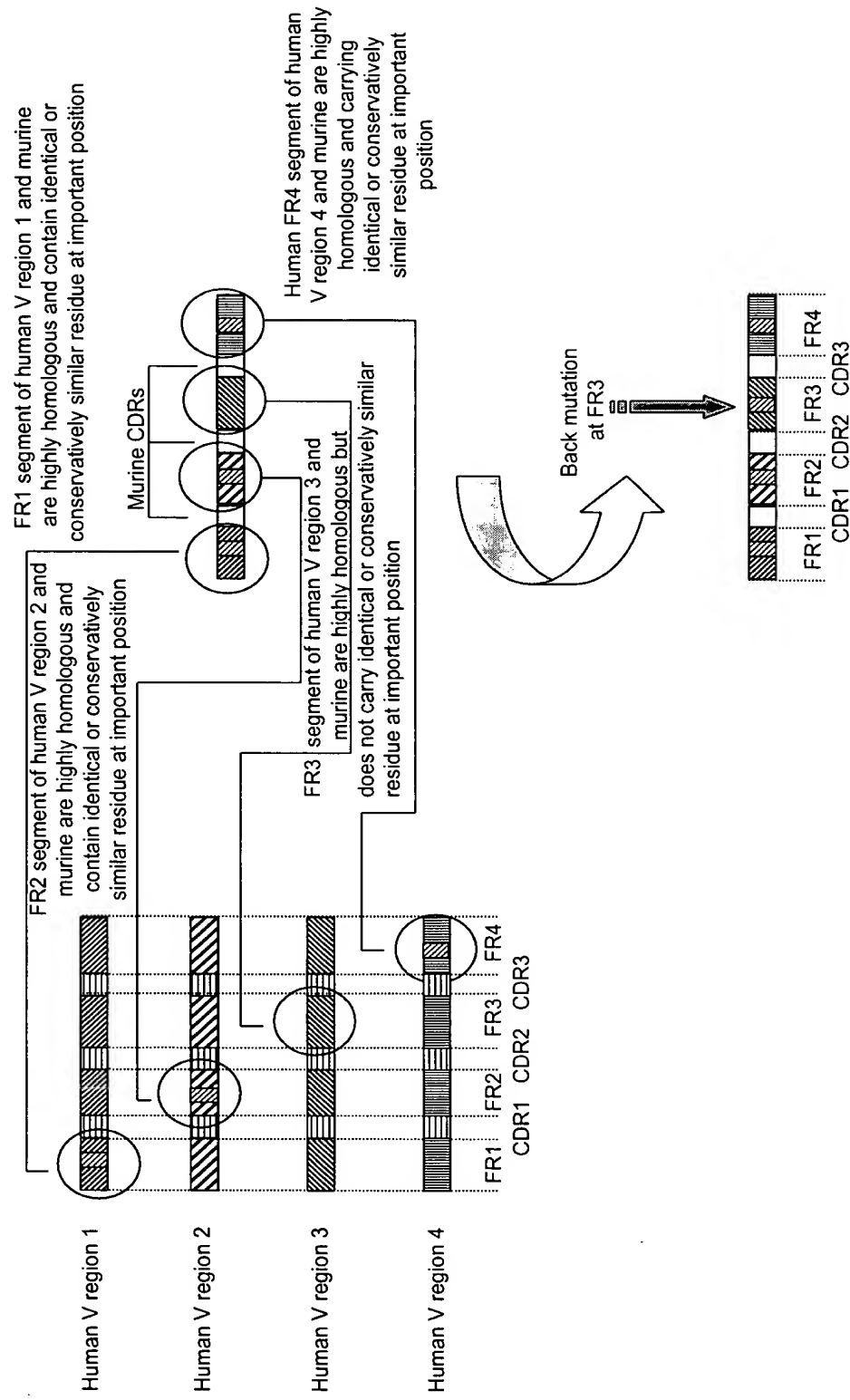


**Diagrams Illustrating the Differences between Framework-Patching and Humanization**



## Back Mutation After Framework-Patching Minimizes Back-Mutated Residues



Since the FR1, FR2, and FR4 chosen already contain the desired residues at critical positions:

**No Need for Back Mutation at these segments. FR3 requires one additional modification (back-mutation) to restore binding function. A total of ONE back-mutation is required (instead of 4 using Queen's approach)**